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| SERIAL NUMBER | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
| 087401,229 | 03/09/95 | TANG | W 50169/105/EN |

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E5M1/0712

LEE EXAMINER

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| ART UNIT | PAPER NUMBER |
| 2501 | 3 |

DATE MAILED: 07/12/95

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined. ☐ Responsive to communication filed on _____ ☐ This action is made final.
A shortened statutory period for response to this action is set to expire THREE (3) month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input checked="" type="checkbox"/> Notice re Patent Drawing, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of informal Patent Application, Form PTO-152. |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> _____ |

Part II SUMMARY OF ACTION

1. ☒ Claim(s) 17 - 20 are pending in the application.
Of the above, claim(s) _____ are withdrawn from consideration.
2. ☒ Claim(s) 1 - 16 have been canceled.
3. ☐ Claim(s) _____ are allowed.
4. ☒ Claim(s) 17 - 20 are rejected.
5. ☐ Claim(s) _____ are objected to.
6. ☐ Claim(s) _____ are subject to restriction or election requirement.
7. ☒ This application has been filed with informal drawing(s) under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawing(s) are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction(s), filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under 35 USC 119. The certified copy has ☐ been received ☐ not been received
☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☒ Other The preliminary amendment has been entered.

EXAMINER'S ACTION

This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed. Note the comments of the Office Draftsperson on the attached form PTO-948.

The disclosure is objected to because of the following informalities: on pages 13 (line 22) and 14 (line 22) of the specification, the wafer is referenced by numeral "8", but it is believed that numeral --11-- is intended. Note that the wafer is correctly numbered on page 13, line 19, and note also that numeral "8" is elsewhere used to indicate the photodetector. Appropriate correction is required. Applicant's cooperation is requested in correcting any other errors of which applicant may become aware in the specification.

The Abstract of the Disclosure is objected to because there is no mention therein of the invention being claimed in this divisional application (i.e. the bifurcated fiber-optic cable monitoring/measuring means). Correction is required. See M.P.E.P. § 608.01(b).

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which

the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 17-20 are rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent 3,510,667 to Cleveland et al. Cleveland et al discloses precisely the same optical monitoring apparatus claimed by applicant: note the bifurcated fiber-optic cable having a common leg and two bifurcated legs; the rotating fiber-optic cable with two ends; the light source (not shown) connected to bifurcated leg 26a; the means for analyzing a light signal (not shown) connected to bifurcated leg 26b; and the rotating coupler having a stator and a rotor, the common leg of the bifurcated fiber-optic cable being connected to the stator and one end of the rotating fiber-optic cable being connected to the rotor. The other end of the rotating fiber-optic cable is held in close proximity to the article being inspected.

The only differences between the device being claimed by applicant and that disclosed by Cleveland et al are (1) Cleveland et al does not disclose the exact distance between the surface of the article being inspected and the other end of the rotating fiber-optic cable, and (2) Cleveland et al does not state that the inspection apparatus is used for monitoring film thickness change or in combination with a chemical mechanical polishing

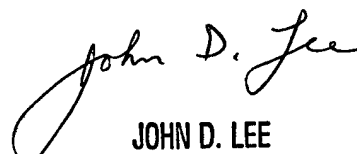
device. The second of these two differences would have been clearly obvious to the ordinarily skilled artisan in view of the teaching of Cleveland et al (column 1 of the patent) that the patented apparatus is useful during manufacturing of practically every article sold in commerce. A reading of the patent makes it clear that the Cleveland et al apparatus can detect minute flaws, imperfections, and defects (optically) on the surface of an article, and this capability would make it ideally suited to the monitoring of film thickness change or monitoring of film planarization (i.e. during film polishing). The first difference is one of degree, and as such would have been obvious to the person of ordinary skill in the art. Any person skilled in manufacturing technologies would understand that the inspection end of an optical fiber cable could only be placed so close to the surface of the article being inspected/manufactured. This distance would vary depending on the manufacturing technique being employed. Therefore, a claim limitation specifying that the distance is a particular amount (e.g. less than one centimeter) does not impart patentability in and of itself. Such a claim, considered as a whole with the apparatus which it further limits, represents an embodiment which would have been entirely obvious to the person of ordinary skill in view of the disclosure of Cleveland et al.

Serial No. 08/401,229
Art Unit 2501

5

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Other bifurcated fiber-optic cable apparatus for inspection and/or manufacturing applications can be seen in the U.S. Patents to Roll, Claypool et al, and Claypool. The Japanese patent to Tokunaga et al shows a bifurcated fiber-optic cable attached to a rotating fiber-optic cable.

Any inquiry concerning this communication should be directed to Examiner John D. Lee at telephone number (703) 308-4886.


JOHN D. LEE
PRIMARY PATENT EXAMINER
GROUP ART UNIT 251